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10/689,114	10/19/2003	Matthew A. Huras	YOR920030458US1 (590.118)	2917

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EXAMINER
CHEN, QING

ART UNIT	PAPER NUMBER
2191	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-9,11-14,16-20,22 and 23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-9,11-14,16-20,22 and 23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 October 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This Office action is in response to the amendment filed on October 10, 2007.

2.   **Claims 1-3, 5-9, 11-14, 16-20, 22, and 23** are pending.

3.   **Claims 1-3, 5-9, 11-14, 16-20, 22, and 23** have been amended.

4.   **Claims 4, 10, 15, and 21** have been cancelled.

5.   The objection to the drawings is withdrawn in view of Applicant's submission of the replacement drawing sheets.

6.   The objection to the specification due to informalities is withdrawn in view of Applicant's amendments to the specification. However, Applicant's amendments to the specification fail to address the objection due to the use of a trademark. Accordingly, this objection is maintained and further explained below.

7.   The objections to Claims 5-9, 11, 16-20, 22, and 23 are withdrawn in view of Applicant's amendments to the claims. The objections to Claims 4, 10, 15, and 21 are withdrawn in view of Applicant's cancellation of the claims.

8.   The 35 U.S.C. § 112, second paragraph, rejections of Claims 1-3, 5-9, 11-14, 16-20, 22, and 23 are withdrawn in view of Applicant's amendments to the claims. The 35 U.S.C. § 112, second paragraph, rejections of Claims 4, 10, 15, and 21 are withdrawn in view of Applicant's cancellation of the claims.

9.   The 35 U.S.C. § 101 rejections of Claims 1-3, 5-9, and 11 are maintained in view of Applicant's amendments to the claims and further explained below. The 35 U.S.C. § 101 rejections of Claims 4 and 10 are withdrawn in view of Applicant's cancellation of the claims.

Response to Amendment

Specification

10.   The disclosure is objected to because of the following informalities:

- "production low" should presumably read -- production load -- on page 3, line 17.

Appropriate correction is required.

11.   The use of trademarks, such as DB2 and AIX, has been noted in this application.
Trademarks should be capitalized wherever they appear (capitalize each letter OR accompany
each trademark with an appropriate designation symbol, *e.g.*, ™ or ®) and be accompanied by
the generic terminology (use trademarks as adjectives modifying a descriptive noun, *e.g.*, "the
JAVA programming language").

Although the use of trademarks is permissible in patent applications, the proprietary
nature of the marks should be respected and every effort made to prevent their use in any
manner, which might adversely affect their validity as trademarks.

Claim Objections

12.   **Claims 1-3, 5-9, 11-14, 16-20, 22, and 23** are objected to because of the following
informalities:

- **Claims 1, 12, and 23** recite the limitation "the throttling level." Applicant is advised
  to change this limitation to read "the derived throttling level" for the purpose of providing
  it with proper explicit antecedent basis.

- **Claims 2, 3, 5-9, and 11** depend on Claim 1 and, therefore, suffer the same deficiency as Claim 1.

- **Claims 13, 14, 16-20, and 22** depend on Claim 12 and, therefore, suffer the same deficiency as Claim 12.

- **Claims 3, 14, and 18** recite the limitation "the utility." Applicant is advised to change this limitation to read "the at least one utility" for the purpose of providing it with proper explicit antecedent basis.

- **Claims 16-20 and 22** contain a typographical error: Claims 16-20 and 22 should depend on Claim 13.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

13.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

14.   **Claims 1-3, 5-9, and 11** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-3, 5-9, and 11 are directed to systems. However, the recitation of the systems utilizing a processor only serves as an intended use limitation of the systems. A system utilizing a processor to perform a specific function does not necessarily suggest that the system includes a

processor as a component. In other words, the recited components of the systems appear to lack the necessary physical components (hardware) to constitute a machine or manufacture under § 101. Therefore, these claim limitations can be reasonably interpreted as computer program modules—software *per se*. Furthermore, the specification discloses that the invention may be implemented in software *(see Page 24: 8 and 9)*. Although the specification expressly states that the invention may also be implemented in hardware of a combination of hardware and software, the claims are construed to cover software under the broadest reasonable interpretation, since the specification provides intrinsic evidence of such. Thus, the claims are directed to functional descriptive material *per se*, and hence non-statutory.

The claims constitute computer programs representing computer listings *per se*. Such descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element, which defines structural and functional interrelationships between the computer program and the rest of the computer, that permits the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claim Rejections - 35 USC § 102

15.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16.   **Claims 1-3, 5, 9, 11-14, 16, 20, 22, and 23** are rejected under 35 U.S.C. 102(e) as being

anticipated by **US 2003/0088605 (hereinafter "Beghtel")**.

As per **Claim 1**, Beghtel discloses:

-     an arrangement for determining at least one utility within the computer system *(see*

Paragraph [0021], "Computer subsystem 220 is suitable for executing tasks in accordance with

the preferred embodiment and comprises high priority task 210 invoked by an online command

utilizing terminal 232 or by JCL 230. Computer subsystem 220 may also comprise other tasks,

such as one or more online transaction tasks 212.");

-     an arrangement for deriving a throttling level for the at least one utility which

quantifies the reduction in the rate at which the at least one utility consumes resources *(see*

Paragraph [0023], "High priority task 210 receives a throttle specification, in step 310, from the

invoking operating system or subsystem. The throttle specification is in the form of a

recommended percentage value where the value represents the percentage of CPU cycles

available to high priority task 210 to be dedicated to high priority task 210."); and

- an arrangement for enforcing the derived throttling level for the at least one utility *(see Paragraph [0027], "Following the calculation of a suspension time in step 340, high priority task 210 is suspended, in step 345, for the duration of this calculated suspension time. ")*;

- wherein said arrangement for enforcing the derived throttling level is implemented within the at least one utility *(see Paragraph [0027], "Following the calculation of a suspension time in step 340, high priority task 210 is suspended, in step 345, for the duration of this calculated suspension time. ")*;

- wherein the system utilizes a processor to regulate resource consumption *(see Paragraph [0018], "The computer system 100 comprises one or more central processing units (CPUs) 102, 103, and 104. The CPUs 102-104 suitably operate together in concert with memory 110 in order to execute a variety of tasks. ")*.

As per **Claim 2**, the rejection of **Claim 1** is incorporated; and Beghtel further discloses:

- wherein said arrangement for determining ascertains whether the at least one utility has indicated its presence with the computer system *(see Paragraph [0021], "Computer subsystem 220 is suitable for executing tasks in accordance with the preferred embodiment and comprises high priority task 210 invoked by an online command utilizing terminal 232 or by JCL 230. Computer subsystem 220 may also comprise other tasks, such as one or more online transaction tasks 212. ")*.

As per **Claim 3**, the rejection of **Claim 2** is incorporated; and Beghtel further discloses:

- wherein indicating the presence of the at least one utility within the computer system

comprises the at least one utility registering with a utility manager *(see Paragraph [0021],*

"Computer subsystem 220 is suitable for executing tasks in accordance with the preferred

embodiment and comprises high priority task 210 invoked by an online command utilizing

terminal 232 or by JCL 230. Computer subsystem 220 may also comprise other tasks, such as

one or more online transaction tasks 212.").

As per **Claim 5**, the rejection of **Claim 2** is incorporated; and <u>Beghtel</u> further discloses:

- wherein the derived throttling level is enforced through a self-imposed sleep *(see*

Paragraph [0027], "Following the calculation of a suspension time in step 340, high priority

task 210 is suspended, in step 345, for the duration of this calculated suspension time.").

As per **Claim 9**, the rejection of **Claim 2** is incorporated; and <u>Beghtel</u> further discloses:

- wherein the derived throttling level is enforced by reducing the amount of processing

accomplished by the at least one utility *(see Paragraph [0027], "Following the calculation of a*

suspension time in step 340, high priority task 210 is suspended, in step 345, for the duration of

this calculated suspension time.").

As per **Claim 11**, the rejection of **Claim 9** is incorporated; and <u>Beghtel</u> further discloses:

- wherein the derived throttling level is enforced by reducing the operating system

priority of the at least one utility *(see Paragraph [0010], "Prior to initiating the next unit of*

work for the computer task, the computer task is suspended for the calculated suspension time. In

this manner, other important computing tasks operating in the computer system have access to

critical computer resources during the suspension period. ").

Claims 12-14, 16, 20, and 22 are method claims corresponding to the system claims

above (Claims 1-3, 5, 9, and 11) and, therefore, are rejected for the same reasons set forth in the

rejections of Claims 1-3, 5, 9, and 11.

Claim 23 is a program storage device claim corresponding to the system claim above

(Claim 1) and, therefore, is rejected for the same reason set forth in the rejection of Claim 1.

Claim Rejections - 35 USC § 103

17.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

18.   **Claims 6-8 and 17-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Beghtel in view of **US 6,834,386 (hereinafter "Douceur").**

As per **Claim 6**, the rejection of **Claim 2** is incorporated; however, <u>Beghtel</u> does not

disclose:

-    wherein the at least one utility is a multi-process utility and the derived throttling

level is enforced by reducing the parallelism of multi-processes.

Douceur discloses:

- wherein the at least one utility is a multi-process utility and the derived throttling level is enforced by reducing the parallelism of multi-processes *(see Column 7: 22-32, "Although a single task may include multiple threads in order to maintain multiple contexts, in one implementation, only one thread is permitted to proceed at a time, in order to prevent threads from interfering with each other's work measurements." and "Task execution alternates between the threads (as determined by the process) in an attempt to maintain an approximately constant work queue depth.").*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Douceur into the teaching of Beghtel to include wherein the at least one utility is a multi-process utility and the derived throttling level is enforced by reducing the parallelism of multi-processes. The modification would be obvious because one of ordinary skill in the art would be motivated to prevent threads from interfering with each other's work *(see Douceur – Column 7: 22-32).*

As per **Claim 7**, the rejection of **Claim 2** is incorporated; however, Beghtel does not disclose:

- wherein the derived throttling level is enforced by reducing the amount of memory used by the at least one utility.

Douceur discloses:

- wherein the derived throttling level is enforced by reducing the amount of memory used by the at least one utility *(see Column 7: 49-56, "A task may also be given a reduced CPU*

scheduling priority, whereby the CPU scheduling mechanism 116 will further control the cycles

given to the background task 110₁. As represented in FIG. 5, the background task 110, may be

thus limited in how often it is given access to the CPU 21 and/or how often it obtains access to

an I/O resource 118 (e.g., a disk via an I/O manager 120).").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to incorporate the teaching of Douceur into the teaching of Beghtel to

include wherein the derived throttling level is enforced by reducing the amount of memory used

by the at least one utility. The modification would be obvious because one of ordinary skill in the

art would be motivated to limit the amount of work performed by the task.

As per **Claim 8**, the rejection of **Claim 2** is incorporated; however, Beghtel does not

disclose:

- wherein the derived throttling level is enforced by changing the granularity of

locking.

Douceur discloses:

- wherein the derived throttling level is enforced by changing the granularity of locking

(see Column 5: 31-35, "To avoid interfering with foreground processes via file locking conflicts,

opportunistic locks are used by the groveler 60 when accessing a file, which temporarily suspend

access to the file by another process until the groveler 60 can release it.").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to incorporate the teaching of Douceur into the teaching of Beghtel to

include wherein the derived throttling level is enforced by changing the granularity of locking.

The modification would be obvious because one of ordinary skill in the art would be motivated

to prevent threads from interfering with each other's work *(see Douceur – Column 5: 31-35)*.

Claim 17 is rejected for the same reason set forth in the rejection of Claim 6.

Claim 18 is rejected for the same reason set forth in the rejection of Claim 7.

Claim 19 is rejected for the same reason set forth in the rejection of Claim 8.

Response to Arguments

19.   Applicant's arguments with respect to Claims 1, 5, 9, 11, 12, 16, 20, 22, and 23 have

been considered, but are moot in view of the new ground(s) of rejection.

In the remarks, Applicant argues that:

a)   As to claim 6, it should be further noted that Douceur never discusses reducing the

parallelism level of the utility work. Rather, Douceur merely states that the utility may consist of

multiple processes, but does not mention at all reducing the level of parallelism.

Examiner's response:

a)   Examiner disagrees. Douceur clearly discloses reducing the parallelism level of the utility

work *(see Column 7: 22-32, "Although a single task may include multiple threads in order to*

maintain multiple contexts, in one implementation, only one thread is permitted to proceed at a

time, in order to prevent threads from interfering with each other's work measurements." and

"Task execution alternates between the threads (as determined by the process) in an attempt to maintain an approximately constant work queue depth.").

In the remarks, Applicant argues that:

b)   As to claim 7, the text cited by the Examiner is merely discussing an outcome of reducing the operating system priority, which is a well known concept, not one invented by Douceur. No mention of reducing memory (i.e. RAM) usage as a throttling mechanism is made.

Examiner's response:

b)   Examiner disagrees. Douceur clearly discloses reducing the amount of memory usage *(see Column 7: 49-56, "A task may also be given a reduced CPU scheduling priority, whereby the CPU scheduling mechanism 116 will further control the cycles given to the background task 110_1. As represented in FIG. 5, the background task 110, may be thus limited in how often it is given access to the CPU 21 and/or how often it obtains access to an I/O resource 118 (e.g., a disk via an I/O manager 120).").* Note that access to the I/O resource disk is limited by the scheduling priority given to the task (throttling level).

In the remarks, Applicant argues that:

c)   As to claim 8, it should be further noted that the text cited by the Examiner refers to the normal behavior/implementation of the groveler utility; it is not influenced or affected by the throttling system. Douceur does not mention that the throttling level can influence the granularity or behavior of how the utility acquires or releases locks.

Examiner's response:

c)   Examiner disagrees. Douceur clearly discloses changing the granularity of locking *(see Column 5: 31-35, "To avoid interfering with foreground processes via file locking conflicts, opportunistic locks are used by the groveler 60 when accessing a file, which temporarily suspend access to the file by another process until the groveler 60 can release it.")*. Note that the groveler acquires the locks when accessing a file and releases the locks afterwards. This is done to avoid interfering with other processes accessing the file. Thus, access to the file is throttled.

Conclusion

20.   Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM. The Examiner can also be reached on alternate Fridays.

         If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Wei Zhen, can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
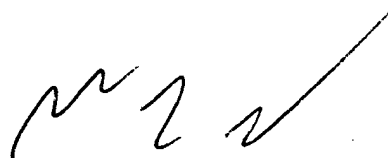
         Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

         Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QC
December 11, 2007

WEI ZHEN
SUPERVISORY PATENT EXAMINER